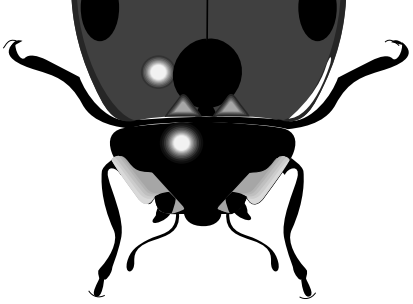

PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

FOR IMMEDIATE RELEASE
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Executive editor: Kevin Steffey, Extension Entomologist

Available on the Web at http://www.ag.uiuc.edu/cespubs/pest/
For subscription information, phone 217.244.5166, or e-mail acesnews@uiuc.edu

Also in This Issue

Other States' Newsletters

As a service to our readers, I want to provide you with access to as much information about pest management and crop development as possible. All states in the north-central region of the United States create their own newsletters regarding pest management and crop development and conditions. These newsletters are excellent sources of information that may reinforce our opinions and recommendations, may offer different opinions and recommendations, and/or may provide early warnings of pending problems. I encourage you to seek as much information as possible regarding any problem that develops in field crops in Illinois. We certainly don't claim to have all of the answers. Growers and agricultural professionals can make the most informed decisions after accumulating as much information as possible.

To access the newsletters produced in other states, visit the Web site for the USDA Regional Pest Management Centers, http://www.pmcenters.org/. At the site, click on News, then click on Pest Management Newsletters under "Index of News for NATIONAL Site." The list includes newsletters from all over the country. The topics of the newsletters include field crops; horticultural crops; and home, yard, and garden, to name a few. If you are interested only in newsletters developed by specialists in the north-central region, go to the North Central Region Pest Management Center Web page at http://www.ncpmc.org/. Click on Pest Alerts & News to find a list of midwestern newsletters. Or you can proceed directly to http://www.ncpmc.org/NewsAlerts/index.html.

As you visit other Web sites and find useful information, please don't hesitate to let us know how we can improve our own reporting. We appreciate the suggestions.—*Kevin Steffey*

Field Crop Scouting Manual on Sale

Just in time for summer! With the crop scouting season quickly approaching, the *Field Crop Scouting Manual* is an excellent source for all scouts to have on hand. The CDR880c *Field Crop Scouting Manual* CD-ROM price is now reduced to $10.00, while quantities last. For each X880c *Field Crop Scouting Manual* (214 pages, 8.5 x 11 inches, spiral bound) purchased for $40, a *Field Crop Scouting Manual* CD-ROM will be included at no additional charge. Descriptions of the *Field Crop Scouting Manual* and many other agriculturally related publications can be viewed by going to http://www.aces.uiuc.edu/ITCS/IM/ and following the link to the ITCS Instructional Materials catalog. This is a great guide to add to your reference collection. To order the *Field Crop Scouting Manual,* please contact Information Technology and Communication Services at (800)345-6087 or on the Web at http://www.aces.uiuc.edu/ITCS/IM.—*Kelly Cook*

INSECTS

An Information Network for Corn Earworm and European Corn Borer Counts

In the next couple of weeks, we will be establishing a database for up-to-date information on counts of corn earworm and European corn borer moths from traps at various locations around Illinois. If you will be operating a corn earworm pheromone trap, or a light trap or a pheromone trap for European corn borer, we would like to ask for your help. We're looking for data providers to send in trap counts on a regular basis. We can now use e-mail updates and the Web to make counts readily available. As an example, check out the "Hines Report" on the IPM Web site, http://www.ipm.uiuc.edu/pubs/hines_report/index.html. Ron Hines, senior research specialist at the University of Illinois Dixon Springs Agricultural Center, provides weekly updates of captures of several species of moths throughout the season.

We would like to establish a network of data providers. If you are interested in taking part in this project, please contact me at (217)333-6651 or kcook8@uiuc.edu.—*Kelly Cook*

Errata

In issue no.1 (March 21, 2003) of the *Bulletin*, I made some errors in one of the articles I wrote. Although the errors have been corrected on the Web site, I want to make certain that the errors are rectified in the printed copies of the *Bulletin*. The errors occurred in the article titled "New Products for Insect Control."

Regarding the product Empower, a Helena Chemical Company product, I indicated that the active ingredient is cyfluthrin. Cyfluthrin is the active ingredient of Baythroid, a Bayer Crop Sciences product, and *not* the active ingredient of either Empower or Capture. The active ingredient of both Empower and Capture is bifenthrin. In the same section, I indicated that the Asset Formulation Technology in Empower was a root stimulant. The label for Empower makes no such claim.

Regarding the product Herculex I Insect Protection with the Cry1F protein for control of several pest caterpillars, I indicated that the trait would be available in Mycogen Seeds hybrids in 2003. The trait also will be available in Pioneer Hi-Bred International hybrids in 2003. The trait was developed jointly by Dow AgroSciences and Pioneer Hi-Bred International, Inc.

I regret the errors.—*Kevin Steffey*

White Grubs in Corn

As I write this article, the weather in Champaign County seems perfect for fieldwork—bright and sunny with a projected high temperature of 74°F. If this type of weather holds for a while, activity in the fields will increase substantially during the next couple of weeks. And as spring tillage commences and planting begins shortly thereafter, visions of white grubs will dance in your head. (Okay, the "Night Before Christmas" analogy is lame, but you get the point.)

During the past few years, white grubs have captured considerable attention in some areas of Illinois. In May 2002, we received a fair number of reports of seedling corn that had been injured by white grubs, and some parts of some fields had to be replanted as a consequence of the damage. White grub problems in 2002 were most prevalent in east-central, central, southwestern, and northwestern Illinois, but growers elsewhere had their fair share of grubs. Before the pace of corn planting becomes frenzied, now is a good time to review what we know and what we hope to learn about white grubs in 2003.

In the past, we have focused primarily on so-called true white grubs, that is, white grubs in the genus *Phyllophaga* with three-year life cycles. (From now on, I will refer to these grubs as *Phyllophaga* white grubs, rather than true white grubs.) Although these white grubs can cause significant damage, evidence is mounting that most white grub problems in Illinois are not caused by *Phyllophaga* grubs. Hosts for the adults of these grubs are ash, elm, poplar, and willow trees, and more than one study has shown that the risk of infestation of *Phyllophaga* grubs is greatest in fields near adult food sources. Consequently, infestations of *Phyllophaga* species probably are not widespread.

So can all of the reports of white grub injury be attributed to annual white grubs? As the common name suggests, annual white grubs have one generation per year. The species that are found most commonly in corn in Illinois are the southern masked chafer, *Cyclocephala lurida*, and the Japanese beetle, *Popillia japonica*. According to an article written by Larry Bledsoe, an entomologist at Purdue University, in the *Proceedings of the 2002 Crop Protection Technology Conference*, southern masked chafer grubs rarely cause economic injury to either corn or soybeans. Therefore, it's likely that much of the grub damage to corn that has occurred in Illinois in recent years has been caused by Japanese beetle grubs. Many observers have verified this statement.

Life cycles and injury. Japanese beetle adults lay eggs in the soil in mid- to late summer. Larvae hatch and feed through the fall, then descend in the soil to escape cold winter temperatures. The grubs move back toward the soil surface in the spring and feed on organic matter. However, they also feed on corn roots, if available, especially if organic matter is limited. When they finish feeding, the grubs pupate, and adults emerge in early summer.

May or June beetles, the adults of *Phyllophaga* white grubs, also lay eggs in mid- to late summer. The larvae hatch and molt once before winter

dormancy. They also descend in the soil to avoid cold soil temperatures. In the spring, the grubs move toward the soil surface to feed on plant roots, including roots of both corn and soybeans. They continue to feed throughout the summer. After they pass the second winter deep in the soil, they again ascend the following spring to feed on plant roots. This is when most *Phyllophaga* white grub problems are noticed, because the larvae are fully grown and consume more root tissue. When they finish feeding, the larvae pupate, and adults emerge in midsummer.

Both types of white grubs chew off the fine hairs on the roots; injured roots do not take up water and phosphorus very well. Consequently, aboveground symptoms of white grub injury include wilting and purpling of the stem. Severely infested fields often suffer stand loss when injured plants die. Early-planted corn usually is more vulnerable to white grub damage because the insects feed early in the spring.

Anticipating white grub problems. It is difficult to anticipate white grub problems. As I stated previously, *Phyllophaga* white grub problems occur most frequently in fields near adult food sources. However, we have not detected a consistent pattern for problems caused by Japanese beetle grubs. Both types of grubs can be found in the soil in late summer, but very few people look for them. Consequently, one of the few ways to detect white grubs is to watch for them during tillage operations. Any type of soil tillage usually brings some grubs to the soil surface. In fact, the presence of lots of birds following a tillage operation usually is a clear indication that grubs are present. The birds feast on the grubs lying on top of the soil.

Entomologists have speculated that the increase in reports of white grub injury in recent years may have been the result of consecutive mild winters, at least in part. In many areas of Illinois, the winter of 2002–2003 was not necessarily mild. Depending on the depth of frozen soil, it's possible that white grub larvae may have frozen. However, keep in mind that white grubs overwinter 15 to 18 inches deep.

Identification. If you find grubs in a field, it is very important to determine the type of grub present. *Phyllophaga* grubs and Japanese beetle grubs can cause damage to corn; it's unlikely that *Cyclocephala* grubs will cause economic damage. To identify white grubs, you need to examine the raster pattern—the arrangement of small hairs and spines on the underside of the last abdominal segment (Figure 1). Different species of white grubs have different raster patterns.

The Japanese beetle grub has an arrangement of hairs that form overlapping V-shaped patterns (Figure 2a). These lines of hairs form a V that usually is distinct in the center of the pattern. The *Cyclocephala* grub has no distinct pattern of hairs on its raster (Figure 2b). The *Phyllophaga* grub has hairs in the center arranged in nearly parallel rows, resembling an open zipper (Figure 2c).

Research to be conducted in 2003. Because Japanese beetle grubs and adults have been quite problematic in some areas of Illinois, we will embark on some research in 2003 to learn more about this pest in Illinois cornfields. Nathan Wentworth, an M.S. candidate in the Department of Crop Sciences, will conduct research in as many as six fields in Macon County this spring. He will work with me, Mike Gray, and Ron Estes, coordinator of the Insect Management and Insecticide Efficacy program, to establish trials in fields that have significant densities of Japanese beetle grubs. Nathan sampled for grubs in several fields on March 27, and he had no trouble finding the critters. In fact, one of the fields has a particularly high density of grubs, so we intend to establish two trials in that field. We hope that by establishing as many as six trials we will garner data from at least a couple of them. Our experience with white grubs in the past suggests that injury symptoms do not develop in all fields.

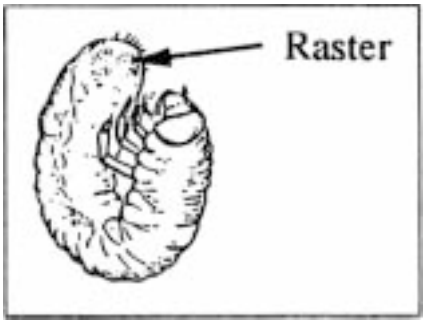

Figure 1. Location of raster on a white grub. (Illustration modified from the 2000 Corn and Soybean Field Guide, *Publication ID-179, Purdue University Cooperative Extension Service, West Lafayette, Indiana.)*

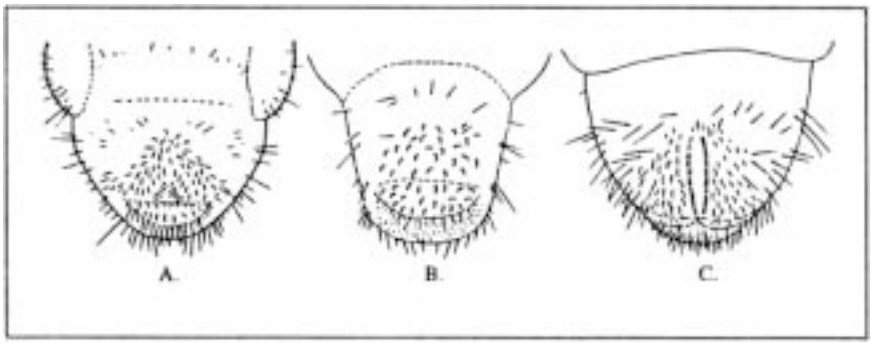

Figure 2. White grub raster patterns: (a) Japanese beetle, (b) Cyclocephala *grub, and (c)* Phyllophaga *grub. (Grub illustration modified from the* 2000 Corn and Soybean Field Guide, *Publication ID-179, Purdue University Cooperative Extension Service, West Lafayette, Indiana.)*

In the trials, we will examine the efficacy of several products registered for control of white grubs—Aztec, Capture, Cruiser, and Regent—and also try to relate different levels of injury with yields. We hope to examine the effects of grub feeding on several plant parameters, including plant population, plant height, and plant injury. In addition, we will monitor the emergence pattern of the adults beginning in June. The fieldwork will be supplemented with a greenhouse experiment to examine the effects of Japanese beetle grubs feeding on corn seedlings treated and not treated with Cruiser. Overall, we hope to gain some important insight regarding Japanese beetle grubs this year, and we intend to share any practical results we obtain. And as always, we will appreciate any observations you obtain from your field experiences this year.

Insecticides for control of white grubs. If you find either Japanese beetle grubs or *Phyllophaga* grubs, application of a soil insecticide or seed treatment might be justified. This is especially true if corn will be planted early. Insecticides registered for control of white grubs are presented in Table 1. Please follow all label precautions and restrictions.—*Kevin Steffey*

Bean Leaf Beetles: Will They Pose a Threat in 2003?

The infestations of bean leaf beetles in northwestern Illinois in 2002 are still a vivid memory among many growers and ag professionals. There is growing concern about this insect pest and its ability to transmit bean pod mottle virus. As you have heard from us in the past, we still know very little about this insect/disease combination, but we hope to learn more. A team of scientists—Eli Levine and Joe Spencer (Illinois Natural History Survey), Scott Isard (Department of Geography), and Glen Hartman and Les Domier (USDA-ARS)—have conducted some very good research in Illinois, and efforts continue. I will share some of the results from their work in a future issue of the *Bulletin.*

A question on many people's minds right now is "How will the colder winter temperatures affect bean leaf beetle populations this spring?" As you know, bean leaf beetles overwinter above ground, protected from cold temperatures only by debris and snow cover. It's generally believed that mortality of bean leaf beetle increases when winters are cold. In fact, researchers at Iowa State University have provided some excellent information regarding the relationship between winter temperatures and survival of bean leaf beetles. For details, read the article "Bean leaf beetle and winter survival" published in the May 7, 2001, issue of Iowa State University's *Integrated Crop Management* newsletter. You can read it on the Web at http://www.ipm.iastate.edu/ipm/icm/2001/5-7-2001/blbsurvival.html.

Scott Isard, whom I mentioned previously, was poking around in some woods and crop fields on March 23, and his observations were worthy of note: ". . . the number of BLB overwintering in the woods in Champaign County are far greater than they have been in the past two springs. Yesterday [March 23] I collected about 100 BLB from a single piece of cloth that I use as an overwintering trap. They are everywhere in the woods and can be found easily underneath corn and soybean stubble in the fields. . . . I estimate that BLB are about an order of magnitude more numerous than they have been during the past two springs . . ." Scott's observations deserve attention, suggesting that bean leaf beetles may have survived our winter in Champaign County quite well. We'll learn more soon enough.—*Kevin Steffey*

Table 1. Soil insecticides and seed treatments suggested for control of white grubs in corn.

Product	*Amount of product*	*Placement*
*Aztec 2.1G	6.7 oz per 1,000 feet of row	Band, furrow
*Aztec 4.67G (SmartBox only)	3 oz per 1,000 feet of row	Band, furrow
*Capture 1.15G	6.4 to 8 oz per 1,000 feet of row	Band
*Capture 2EC	0.15 to 0.3 oz per 1,000 feet of row	Band
*Counter CR	6 oz per 1,000 feet of row	Band, furrow
Cruiser	See product label	Seed treatment
*Empower	3.2 to 8 oz per 1,000 feet of row	Band, furrow
*Force 3G	4 to 5 oz per 1,000 feet of row	Furrow
*Fortress 2.5G	6 to 7.5 oz per 1,000 feet of row	Furrow
*Fortress 5G (SmartBox only)	3 to 3.75 oz per 1,000 feet of row	Furrow
*Lorsban 4E	4 pt per acre	Preplant incorporated
Lorsban 15G	12 oz per 1,000 feet of row	Furrow
Prescribe	See product label	Seed treatment
ProShield with Force ST	See product label	Seed treatment
*Regent 4SC	0.24 oz per 1,000 feet of row	Furrow
*Thimet 20G	6 oz per 1,000 feet of row	Band

* Use restricted to certified applicators.

Scouting for Alfalfa Weevils

As spring temperatures rise and degree-days start to accumulate, the watch for alfalfa weevils begins. The accumulated degree-days (above a base temperature of 48˚F) from January 1 through March 30, 2003, are shown in Figure 3. Alfalfa fields in southern Illinois will soon be experiencing larval hatch; larval hatch from eggs is expected to occur after the accumulation of 200 degree-days from January 1. First instars can be found in the folded terminal leaves. Initial injury caused by the larvae appears as pinholes in the leaf terminals. As larvae continue to develop and increase in size, damage also increases. Alfalfa

weevil larvae have a green body with a prominent white stripe down the center of the back. When the larvae reach about the third instar, after the accumulation of approximately 325 degree-days, they begin skeletonizing the leaves. Figure 4 shows the projected degree-day accumulations through April 13, 2003. If temperatures continue as they are, alfalfa weevil feeding will be well under way in the southern third of the state by mid-April.

Some tips for scouting for alfalfa weevil larvae: Be sure to look for alfalfa weevil larvae and the symptoms of their feeding injury throughout the field, not just along the edges. Look at areas of the field that may warm up early, such as south-facing slopes or areas of lighter soil. The best way to count the larvae is to snap a stem off at ground level and place it top down into a white bucket. We recommend walking in a U-shaped pattern through the field, collecting stems at random locations. After collecting 30 stems, you can beat the stems, a few at a time, against the sides of the bucket to dislodge the larvae. Sample plant heights throughout the field or randomly select a sample of 10 of the stems to measure the height.

As you initiate your scouting efforts and begin to find alfalfa weevils and signs of their feeding activity, let us know when and where you gathered the information. We'll keep our eyes on reports from Kentucky to give growers in southern Illinois a heads-up.—*Kelly Cook*

PLANT DISEASES

Soybean Rust and Illinois Field Crop Diseases in 2003

Looking onto the fields now as the soils are becoming warm and dry in many parts of Illinois, one may speculate which plant diseases will take their toll on field crop yields this year. We can only guess in many respects

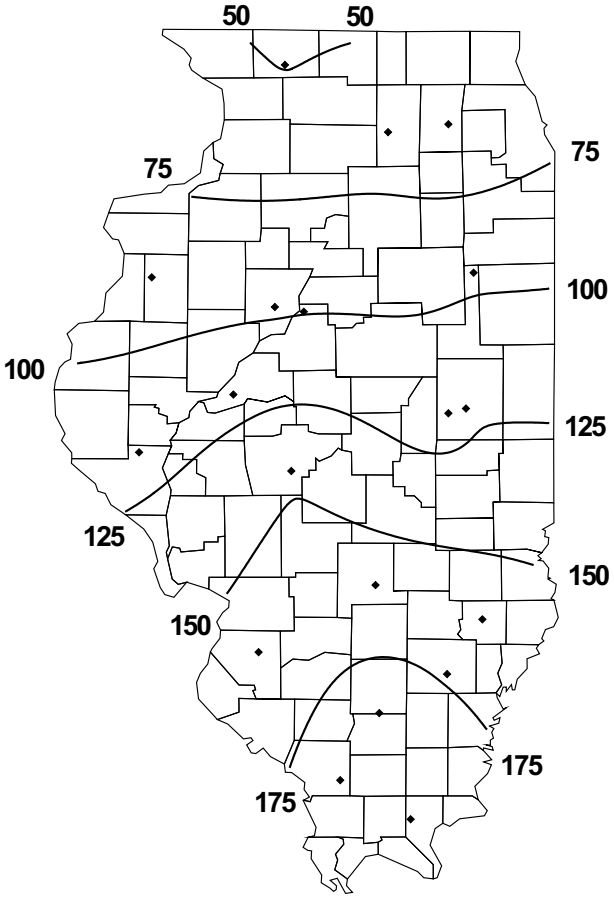

Figure 3. Actual degree-day accumulations (base 48°F) from January 1 through March 30, 2003 (map courtesy of Bob Scott, Illinois State Water Survey).

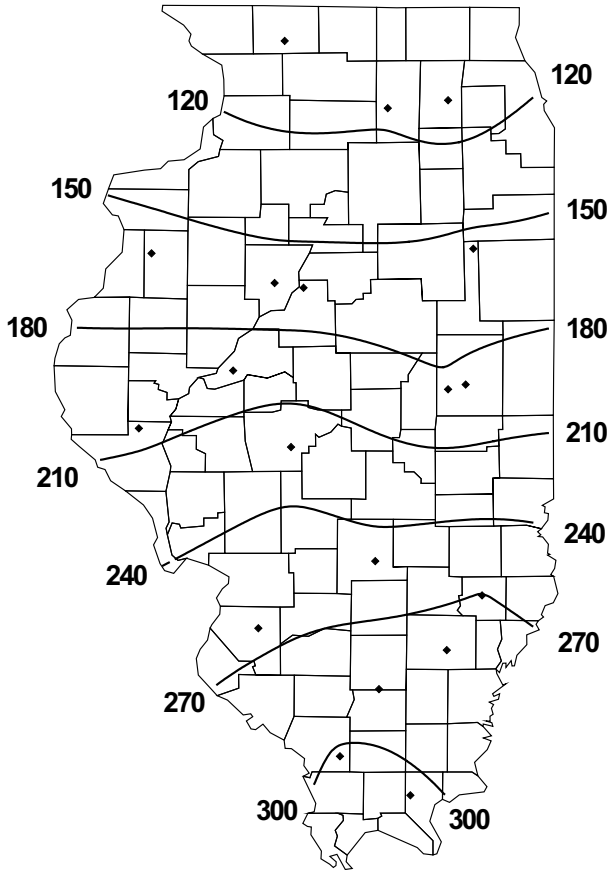

Figure 4. Projected degree-day accumulations (base 48°F) from January 1 through April 13, 2003 (map courtesy of Bob Scott, Illinois State Water Survey).

because disease development is so highly dependent on weather conditions, and we obviously don't know what the weather conditions will be next week and certainly not in July. Although we know some of the regular major disease "players" to watch for this year in soybean and corn crops (SDS, SCN, Phytophthora rot, gray leaf spot, stalk and ear rots, etc.), a disease foremost in the minds of many is soybean rust. It is new and unknown, and may at some point become another significant disease player. We don't know if, when, or where soybean rust may first be found and cause significant damage in the continental United States.

Which diseases of corn, soybean, wheat, and alfalfa will we do battle with in Illinois this year? The word "battle" can only be used in a loose sense in the context of plant disease management because many of the crop management decisions that influence disease have already been made. Cultivar and hybrid selections have been made that will influence disease incidence and severity, many fields have been sampled and tested for SCN, decisions have been made regarding whether and what types of seed treatments will be used, and other decisions have been made based on past experience and knowledge of disease in an area. But still management decisions can be made to reduce problems with some diseases. Plant pathologists and nematologists with the University of Illinois Extension will write articles for the *Bulletin* throughout this 2003 growing season that, we hope, will help you understand and manage many of the diseases that influence field crop yields and quality in Illinois.

We can make lists of diseases to watch for in each crop in Illinois, and we can have some idea of the realistic range of damage levels that could occur based on past experience and reports from others for a particular part of the state. But soybean rust is different—it's new and unknown, and if it does arrive in the continental United States and Illinois, we have no sure idea of the damage it will cause. It could cause minor or major yield losses, and plant pathologists are diligently working to improve our abilities to model, predict, and manage soybean rust. The remainder of this article will focus on a brief summary of key information relating to soybean rust and will provide sources of more detailed information that will answer other questions that you may have.

Based on current models, soybean rust is likely to be dispersed up from the southern United States; hence this disease is likely to first appear in Illinois in the southern part of the state. The soybean rust pathogen is not seedborne, and the microscopic rust spores will most likely be spread by wind and rain or contaminated objects. Scouting for the early stages of this disease is somewhat challenging because the soybean rust lesions often develop first on the underside of leaves. Soybean rust is favored by wet, cool (~55 to 80˚F) weather and will most likely appear in the middle or late summer, although it can appear at any time in the season. The lesions are pinhead-sized (1/12 to 1/6 inch diameter), tan to gray to brown in color, and have sharp edges that are bordered by leaf veins. If lesions are not carefully scrutinized, soybean rust may be confused with the disease bacterial pustule, which does occur in Illinois on a regular basis without causing significant damage. The soybean rust pustules are filled with brown spores, whereas the bacterial pustules contain many bacterial cells that can only be seen with a compound microscope.

Soybean rust is caused by two different rust fungi: *Phakopsora meibomiae* and *Phakopsora pachyrhizi. P. pachyrhizi* is the more aggressive of the two species and has been reported in Hawaii and recently in South America. This aggressive species is the one we are more concerned about, but it cannot be distinguished from the mild species *(P. meibomiae)* without detailed laboratory tests. If a plant is found that is suspected to have soybean rust, send samples to the Plant Clinic at the University of Illinois in Urbana (217-333-0519), where diagnosis and identification of the rust species will be made.

If soybean rust does come to Illinois, how will we manage it? Fungicides will probably be the short-term management strategy, and resistant cultivars are the long-term strategy. Fungicide efficacy trials have been conducted this winter in South America and Africa to establish the information needed to use fungicides for control of soybean rust. As of March 2003, at least two fungicides were labeled for control of soybean rust in the United States: Quadris (active ingredient azoxystrobin) and Bravo (active ingredient chlorothalonil). Additional fungicides will likely be available if and when they are needed for soybean rust control in the United States. Resistant cultivars will not be available for a number of years. The commercial soybean cultivars grown in the Midwest all appear to be susceptible to rust. There is hope that resistant soybean germplasm will be developed, and significant work is in progress to identify resistant germplasm.

Photographs and more information on soybean rust are available at the following Web sites: http://www.planthealth.info/rust/rust.htm and http://www.unitedsoybean.org/ (go to the "soybean producer workshop" section). Throughout 2003, articles will appear in the *Bulletin* to bring you new and current information on soybean rust and other disease problems. As you read the *Bulletin*, we will appreciate any comments and questions you have about any plant disease topics.—*Dean Malvick*

WEEDS

Weather Concerns That Could Affect Weed Management Decisions in 2003

The 2002 growing season marked a year in which growers were faced with a variety of weed management challenges because of weather. Although we can't predict what the weather will

be this growing season, reflecting back on last year's challenges can give us some insight on what potential problems may arise in 2003. The 2002 growing season began with cold, wet weather conditions that soon turned hot and dry. Excessive rains early in the season reduced the activity of some soil-applied grass herbicides that had been applied in March and early April. Research on herbicide movement has shown that with 2.5 inches of rainfall, as much as 50% of a soil-applied herbicide can leach out of the top 2.5 inches of the soil, depending on the herbicide (Bunting and Simmons, UI). Movement of these herbicides below the weed seed germination zone and breakdown of these products under excessive moisture conditions can lead to reduced control and late-season weed escapes.

Cool-to-cold temperatures, particularly in mid-May, also had an effect on postemergence herbicide performance. Some postemergence herbicide applications were made to frost-damaged corn when average daily temperatures were below 50˚F. Herbicide applications that occurred under these stressful growing conditions often resulted in reduced weed control and increased crop sensitivity. For example, postemergence applications of Callisto (mesotrione) under cold temperatures increased corn sensitivity and resulted in bleached corn leaves. Corn plants were able to recover when temperatures increased and plants were able to metabolize the herbicide. Warnings about postemergence herbicide applications under cool temperatures are on a number of labels. It is important to follow these warnings and allow crops to recover from these stressful conditions before making postemergence herbicide applications.

The early-season cool conditions also left the corn crop at several different developmental stages when postemergence herbicide applications were made. This phenomenon became extremely critical when these applications were approaching the maximum corn size window for certain herbicides. Most herbicide labels often refer to plant height, growth stage, or both when discussing timing of postemergence applications. During the cool conditions experienced early in the 2002 season, the corn stayed relatively small in regard to plant height. However, corn continued to advance developmentally. For example, the Accent label indicates that applications can be made to corn up to 20 inches in height or that has six or fewer collars (V6), whichever is more restrictive. If the herbicide application was made by only looking at corn height, the possibility exists that corn injury could occur because the application was made to corn beyond the labeled growth stage. Following the more restrictive labeling is extremely critical, especially under cool growing conditions.

Hot and dry. In contrast to the cold and wet conditions growers faced early in the season, hot and dry conditions were more prevalent throughout many areas of Illinois in June, July, and August. Weeds, such as common lambsquarters and common waterhemp, were tougher to control under these conditions with many of the postemergence herbicides. Decreased control of these species is often related to decreased herbicide absorption into the plant. Under hot and dry conditions, many weed species form thicker leaf cuticles that act as barriers to herbicide absorption. Herbicide additive selection can sometimes enhance weed control under these conditions. For many products, a nonionic surfactant (NIS) may be the additive of choice; however, many labels allow the use of a crop oil concentrate (COC) under very dry conditions to enhance weed control.

Dry conditions last year not only affected the 2002 season but also may impact rotational crops in 2003 because of persistence of herbicide residues in the soil. There are several corn and soybean herbicides that have the potential to carry over after a dry season. Rotational restrictions for many of these herbicides can be found in the *Illinois Agronomy Handbook* or *Illinois Agricultural Pest Management Handbook* or on the herbicide label. Tables 2a and 2b contain rotational restrictions for most corn and soybean herbicides, respectively. Some of the factors that need to be considered to determine whether carryover may be a problem in 2003 are (1) the herbicide's ability to persist in the soil, (2) the amount of rainfall or soil moisture available for degradation, (3) soil temperature, and (4) soil pH.

Soil moisture was the most limiting factor for the degradation of herbicides last season. Dry soil conditions generally reduce the rate of herbicide degradation. Soil moisture is extremely important, especially in the first 2 to 4 weeks after application. If rainfall and soil moisture were not sufficient during this time, dissipation of the herbicide was likely reduced, increasing the potential for carryover. Additionally, lack of soil moisture can result in increased herbicide adsorption to soil particles and organic matter, reducing herbicide availability for degradation.

Because of the planting delays last season, time of herbicide application also may influence rotational crop injury concerns. Several late-season "rescue" applications were made last year, so be sure to observe the rotational crop interval on the respective herbicide labels before planting rotational crops.—*Christy Sprague and Aaron Hager*

Herbicide Premixes for Corn and Soybean

What did you say is in that premix? How much of each component do I get at this application rate? If I apply this premix at a higher rate, am I still within my atrazine application limits?

If you ever have asked yourself (or others) these types of questions, the tables accompanying this article may be beneficial in preserving your good-natured character. While the introduction of novel herbicide active ingredients has slowed considerably over the

Table 2a. Corn–Sorghum herbicide recropping restrictions, months

Herbicide[a]	Comments	Field corn	Sorghum	Wheat	Oats	Rye	Alfalfa	Clover	Soybeans
Acetochlor and its premixes									
Degree, Harness	acetochlor	AT	NY	4	2Y	2Y	2Y	2Y	NY
Degree Xtra, Harness Xtra 5.6L	w/atrazine	AT	NY	15	2Y	2Y	2Y	2Y	NY
DoublePlay	w/EPTC	AT	NY	4	2Y	2Y	2Y	2Y	NY
FulTime, Keystone	w/atrazine	AT	NY	15	2Y	2Y	2Y	2Y	NY[b]
Surpass, TopNotch	acetochlor	AT	NY	4	2Y	2Y	2Y	2Y	NY
Atrazine and its premixes; simazine									
AAtrex, Atrazine	pH < 7.2	AT	AT	NY	2Y	NY	2Y	2Y	NY[b]
Bicep II Magnum, Cinch ATZ	w/*S*-metolachlor	AT	AT[c]	NY	2Y	NY	2Y	2Y	NY[b]
Bicep Lite II Magnum, Cinch ATZ Lite	w/*S*-metolachlor	AT	AT[c]	NY	2Y	NY	2Y	2Y	NY[b]
Buctril + Atrazine	w/bromoxynil	AT	AT	NY	2Y	NY	2Y	2Y	NY
Bullet	w/alachlor	AT	AT[c]	NY	2Y	NY	2Y	2Y	NY[b]
Guardsman Max, G-Max Lite	w/dimethenamid-P	AT	AT[c]	NY	2Y	NY	2Y	2Y	NY
Laddok S-12	w/bentazon	AT	AT	15	15	15	18	18	NY
Liberty ATZ	w/glufosinate	AT	AT	NY[b]	2Y	NY[b]	NY[b]	NY[b]	NY[b]
Lumax	w/*S*-metolachlor + mesotrione	AT	NY	4.5	2Y	2Y	2Y	2Y	NY
Marksman	w/dicamba	AT	AT	10	2Y	10	2Y	2Y	NY[b]
Princep, simazine	simazine	AT	NY	NY	2Y	NY	2Y	2Y	NY
ReadyMaster ATZ	w/glyphosate	AT	AT	NY	2Y	NY	2Y	2Y	NY[b]
Flumetsulam and its premixes; clopyralid									
Hornet WDG	w/clopyralid	AT	12	4	4	4	10.5	26[Fba]	10.5[e]
Python	flumetsulam	AT	12	4	4	4	4	26[Fba]	AT
Stinger	clopyralid	AT	10.5	AT	AT	AT	10.5	18	10.5[e]
Isoxaflutole, flufenacet, and premixes									
Balance PRO	isoxaflutole	AT	6	6	6	6	6	6	6
Epic	isoxaflutole + flufenacet	AT	12	12	12	12	12	12	6
Define	flufenacet	AT	12	12	12	12	12	12	AT
Axiom	flufenacet + metribuzin	AT	12	12	12	12	12	12	AT
Mesotrione									
Callisto	mesotrione	AT	NY	120d	120d	120d	18	18	NY
Imazethapyr and its premixes									
Lightning	w/imazapyr	8.5[f]	18	4	18	4	9.5	40[Fba]	9.0
Pursuit	imazethapyr	8.5[f]	18	3	18	4	4	40[Fba]	AT
Pursuit Plus	w/pendimethalin	8.5	18	4	18	9.5	9.5	40[Fba]	AT
Sulfonylureas and their premixes									
Accent	nicosulfuron	AT	10[d]	4	8	4	10	10	0.5
Accent Gold	nicosulfuron + rimsulfuron + Hornet	AT	12	4	8	4	10.5	26[Fba]	10.5[e]
Basis	thifensulfuron + rimsulfuron	AT	10	4	8	18	10	18	0.5
Basis Gold	nicosulfuron + rimsulfuron + atrazine	AT	10	10	18	10	18	18	10[b]
Beacon	primisulfuron	0.5	8	3	8	3	8	18	8

Table 2a. Corn–Sorghum herbicide recropping restrictions, months (cont.)

Herbicide[a]	Comments	Field corn	Sorghum	Wheat	Oats	Rye	Alfalfa	Clover	Soybeans
Sulfonylureas and their premixes (cont.)									
Celebrity Plus	dicamba + nicosulfuron + diflufenzopyr	0.25	10[d]	4	8	4	12	12	4
NorthStar	primisulfuron + dicamba	0.5	8	3	8	3	8	18	8
Option	foramsulfuron	7d	60d	60d	60d	60d	60d	60d	14d
Permit	halosulfuron	1	2	2	2	2	9	9	9
Spirit	primisulfuron + prosulfuron	1	10	3	3	3	18[g]	18[g]	10–18[h]
Steadfast	nicosulfuron + rimsulfuron	AT	10[d]	4	8	4	12	12	0.5
Yukon	halosulfuron+ dicamba	1	2	2	2	2	9	9	9
Others									
Aim	carfentrazone	30d	30d	30d	30d	30d	30d	30d	30d

[Fba] = field bioassay needed (see label); NY = next year; 2Y = second year; AT = anytime; d = days.

[a]Other corn herbicides have no significant recropping restrictions, but Banvel, Clarity, Eradicane, and 2,4-D have replanting limits for soybeans.
[b]2Y (second year) if applied after June 10 with high atrazine or Liberty ATZ and after July 1 with Basis Gold.
[c]Concep or Screen seed protectant needed.
[d]18 months if pH ≥7.5.
[e]18 months if <15 inches of rainfall received *and* if soil has <2% organic matter.
[f]Clearfield (CL) designated corn hybrids may be replanted anytime.
[g]Spirit: pH <7.8, applied before July 1, rainfall >12 inches within 5 months and >1 inch within 4 weeks of application.
[h]I-70 to I-80: Spirit 10 months. North of I-80: Spirit 18 months.

past few years, new herbicide premixes are introduced almost yearly. It can be difficult to remember what each premix is composed of and how much of each component is contained within the premix. Table 3 lists many of the corn herbicide premixes used in Illinois, while Table 4 is a similar listing of soybean herbicide premixes. Let's examine the information contained within these tables in a little more detail.

The first column lists the commercial or trade name of the herbicide and its formulation. The commercial or trade name is the name most familiar to folks. Another list of names (arguably less familiar than the names in the first column) appears in the second column; these are the common names for each herbicide component of a premix. For example, in Table 3 we see that Axiom (trade name) 68DF (formulation) is composed of the active ingredients flufenacet (common name) and metribuzin (common name). Common names are useful because they always refer to the same active ingredient; trade names don't always refer to the same active ingredient. Think back a few years to a herbicide with the trade name Option; this product contained the active ingredient fenoxaprop (common name) and was used for postemergence control of grass species in soybean. The Option (trade name) herbicide now on the market contains foramsulfuron (common name) and is used for postemergence control of grass species in corn. Needless to say you do not want to apply fenoxaprop to corn or foramsulfuron to soybeans, hence the benefit of knowing herbicide common names.

The third column lists an application rate for each premix. We tried to select application rates that were representative for Illinois, but you may want to select a different rate and redo the calculations in the fourth and fifth columns. The fourth column indicates how much of each active ingredient is applied at the rate listed in the third column. Going back to the example of Axiom, we see that 19 ounces of Axiom provides 0.646 pound flufenacet active ingredient and 0.162 pound metribuzin active ingredient. Note here that, while rates of commercial products are usually expressed in ounces, pounds, pints, quarts, and so on of product per acre, active ingredients are usually expressed in units of pounds of active ingredient or acid equivalent per acre.

Finally, the last column lists product equivalents for each premix component when applied at the rate listed in the third column. So the 19-ounce rate of Axiom provides the same amount of flufenacet and metribuzin that is contained in 17.23 ounces of Define 60DF and 3.45 ounces of Sencor 75DF, respectively.—*Aaron Hager and Christy Sprague*

CROP DEVELOPMENT

Too Early to Plant Corn?

It's tempting . . . soil conditions in much of eastern Illinois are dry enough to be in the fields doing fertil-

Table 2b. Soybean herbicide recropping restrictions, months

Herbicide	Comments	Field corn	Sorghum	Wheat	Oats	Rye	Alfalfa	Clover	Soybeans
Chlorimuron and its premixes									
Canopy[a]	w/metribuzin	10	12	4	30	4	10	12	AT
Classic	high chlorimuron	9[b]	9[b]	3	3	3	12[b]	12[b]	AT
Synchrony STS	w/thifensulfuron	9[b]	9[b]	3	3	3	12[b]	12[b]	AT
Cloransulam and flumetsulam									
FirstRate, Amplify	cloransulam	9	9	3	30[Fba]	30[Fba]	9	30[Fba]	AT
Python	flumetsulam	AT	12	4	4	4	4	26[Fba]	AT
Imazaquin and its premixes (Region 3 = north of Peoria)									
Backdraft SL—									
Region 2[c]	w/glyphosate	9.5[d]	11	4	11	18	18	18	AT
Backdraft SL—									
Region 3[c]	w/glyphosate	18[d]	11	18	18	18	18	18	AT
Scepter—Region 2[c]	imazaquin	9.5[d,e]	11[e]	3[e]	11[e]	18	18	18	AT
Scepter—Region 3[c]	0.5 rate, post	NY[d]	11	Fall[e]	NY[e]	18	18	18	AT
Scepter—Region 3[c]	imazaquin	18	11	18	18	18	18	18	AT
Imazethapyr and its premixes									
Extreme	w/glyphosate	8.5[f]	18	3	18	4	4	40	AT
Pursuit	imazethapyr	8.5[f]	18	3	18	4	4	40	AT
Pursuit Plus	w/pendimethalin	8.5	18	4	18	9.5	9.5	40	AT
Metribuzin and its premixes									
Axiom	w/flufenacet	AT	12	12	12	12	12	12	AT
Boundary	w/*S*-metolachlor	8	12	4.5	12	12	4.5	12	AT
Domain	w/flufenacet	1	12	12	12	12	12	12	AT
Sencor	metribuzin	4	12	4	12	12	4	12	4
Sulfentrazone alone or plus chlorimuron									
Authority	sulfentrazone	10	10	4	4	4	12	18	AT
Canopy XL[a]	w/chlorimuron	10	10	4	30	4	12	18	AT
Command Xtra	w/clomazone	10	10	12	16	16	18	18	AT
Gauntlet	w/cloransulam	10	10	4	12	12	12	30[Fba]	AT
Other active ingredients									
Command 3ME	clomazone	9	9	12	12[g]	12[g]	12[g]	12[g]	AT
Flexstar, Reflex	fomesafen	10	18	4	4	4	18	18	AT
Pendimax/Prowl	pendimethalin	NY	NY	4	NY	NY	NY	NY	AT
Raptor	imazamox	8.5	9	3	9	4	9	18	AT
Treflan	trifluralin	NY	12	NY	12	12	NY	NY	AT
Valor	flumioxazin	2[h]	2[h]	2[h]	12	4	12	12	AT

[Fba] = field bioassay needed (see label); NY = next year; 2Y = second year; AT = anytime.
[a]Midwest states' rate, soil pH <6.8.
[b]Extend 2 months if applied after August 1.
[c]See label for exact area and Region 3 (northern Illinois) full-use rate.
[d]10- to 15-inch annual rainfall is required, or use CL-corn hybrids.
[e]15 months if Scepter/Scepter sequence, but 9.5 months or NY for CL-corn hybrids.
[f]Clearfield (CL) designated corn hybrids may be replanted anytime.
[g]Cover crops may be planted anytime, but stand reductions may occur. Do not graze or harvest for forage for at least 9 months.
[h]30 days following applications of 2 ounces per acre or less.

Table 3. Corn Herbicide Premixes.

Herbicide	*Components (ai/gal or lb)*	*If you apply/ acre:*	*You have applied (ai):*	*Product equivalents are:*
Accent Gold 83.8WDG	clopyralid = 0.517 lb ae flumetsulam = 0.191 lb nicosulfuron = 0.065 lb rimsulfuron = 0.065 lb	2.9 oz	clopyralid = 0.094 lb ae flumetsulam = 0.035 lb nicosulfuron = 0.012 lb rimsulfuron = 0.012 lb	Stinger 3S = 4 fluid oz Python 80WDG = 0.69 oz Accent 75DF = 0.25 oz rimsulfuron = 0.012 lb ai
Axiom 68DF	flufenacet = 0.544 lb metribuzin = 0.136 lb	19 oz	flufenacet = 0.646 lb metribuzin = 0.162 lb	Define 60DF = 17.23 oz Sencor 75DF = 3.45 oz
Basis 75WDG	rimsulfuron = 0.50 lb thifensulfuron = 0.25 lb	0.33 oz	rimsulfuron = 0.01 lb thifensulfuron = 0.005 lb	rimsulfuron = 0.01 lb ai Harmony GT 75DF = 0.11 oz
Basis Gold 89.46WDG	rimsulfuron = 0.0134 lb nicosulfuron = 0.0134 lb atrazine = 0.8678 lb	14 oz	rimsulfuron = 0.012 lb nicosulfuron = 0.012 lb atrazine = 0.759 lb	rimsulfuron = 0.012 lb ai Accent 75DF = 0.25 oz AAtrex 90DF = 0.844 lb
Bicep II Magnum 5.5L Cinch ATZ	S-metolachlor = 2.4 lb atrazine = 3.1 lb	2.1 qt	S-metolachlor = 1.26 lb atrazine = 1.63 lb	Dual II Magnum 7.64E = 1.32 pt AAtrex 4L = 3.26 pt
Bicep Lite II Magnum 6L Cinch ATZ Lite	S-metolachlor = 3.33 lb atrazine = 2.67 lb	1.5 qt	S-metolachlor = 1.2 lb atrazine = 1.00 lb	Dual II Magnum 7.64E = 1.31 pt AAtrex 4L = 2 pt
Buctril + atrazine 3L	bromoxynil = 1.0 lb atrazine = 2.0 lb	2 pt	bromoxynil = 0.25 lb atrazine = 0.5 lb	Buctril 2E = 1 pt AAtrex 4L = 1 pt
Bullet 4CS	alachlor = 2.5 lb atrazine = 1.5 lb	4 qt	alachlor = 2.5 lb atrazine = 1.5 lb	Micro-Tech 4CS = 2.5 qt AAtrex 4L = 1.5 qt
Celebrity Plus 70WDG	diflufenzopyr = 0.17 lb ae dicamba = 0.424 lb ae nicosulfuron = 0.106 lb	4.7 oz	diflufenzopyr = 0.049 lb ae dicamba = 0.125 lb ae nicosulfuron = 0.031 lb	diflufenzopyr = 0.049 lb ae Clarity 4S = 3.98 fluid oz Accent 75DF = 0.66 oz
Degree Xtra 4.04CS	acetochlor = 2.7 lb atrazine = 1.34 lb	3 qt	acetochlor = 2.025 lb atrazine = 1.00 lb	Degree 3.8CS = 2.13 qt AAtrex 4L = 1 qt
Distinct 70WDG	diflufenzopyr = 0.20 lb ae dicamba = 0.50 lb ae	4 oz	diflufenzopyr = 0.05 lb ae dicamba = 0.125 lb ae	diflufenzopyr = 0.05 lb ae Clarity 4S = 4 fluid oz
DoublePlay 7E	acetochlor = 1.4 lb EPTC = 5.6 lb	5 pt	acetochlor = 0.875 lb EPTC = 3.5 lb	Surpass 6.4E = 1.1 pt Eradicane 6.7E = 4.2 pt
Epic 58WDG	flufenacet = 0.48 lb isoxaflutole = 0.10 lb	12 oz	flufenacet = 0.36 lb isoxaflutole = 0.075 lb	Define 60DF = 9.6 oz Balance 75WDG = 1.6 oz
Field Master 4.06S	acetochlor = 2.0 lb atrazine = 1.5 lb glyphosate = 0.56 lb ae	4 qt	acetochlor = 2.0 lb atrazine = 1.5 lb glyphosate = 0.56 lb ae	Harness 7E = 2.29 pt AAtrex 4L = 3 pt Roundup Ultra 3L = 1.5 pt
FulTime 4CS	acetochlor = 2.4 lb atrazine = 1.6 lb	4 qt	acetochlor = 2.4 lb atrazine = 1.6 lb	TopNotch 3.2CS = 3 qt AAtrex 4L = 1.6 qt
G-Max Lite 5L	dimethenamid-P = 2.25 lb atrazine = 2.75 lb	3 pt	dimethenamid-P = 0.844 atrazine = 1.03	Outlook 6EC = 18 fluid oz AAtrex 4L = 2 pt
Guardsman Max 5L	dimethenamid-P = 1.7 lb atrazine = 3.3 lb	4 pt	dimethenamid-P = 0.85 lb atrazine = 1.65 lb	Outlook 6EC = 18.1 fluid oz AAtrex 4L = 3.3 pt

Table 3. Corn Herbicide Premixes (cont.)

Harness Xtra 6L	acetochlor = 4.3 lb atrazine = 1.7 lb	2 qt	acetochlor = 2.15 lb atrazine = 0.85 lb	Harness 7E = 2.46 pt AAtrex 4L = 1.7 pt
Harness Xtra 5.6L	acetochlor = 3.1 lb atrazine = 2.5 lb	2.5 qt	acetochlor = 1.94 lb atrazine = 1.56 lb	Harness 7E = 2.21 pt AAtrex 4L = 3.13 pt
Hornet WDG 68.5WDG	clopyralid = 0.50 lb ae flumetsulam = 0.185 lb	3 oz	clopyralid = 0.094 lb ae flumetsulam = 0.035 lb	Stinger 3S = 4 fluid oz Python 80WDG = 0.69 oz
Keystone 5.25L	acetochlor = 3 lb atrazine = 2.25 lb	3 qt	acetochlor = 2.25 lb atrazine = 1.69 lb	Surpass 6.4EC = 2.81 pt AAtrex 4L = 3.38 pt
Keystone LA 5.5L	acetochlor = 4 lb atrazine = 1.5 lb	2 qt	acetochlor = 2 lb atrazine = 0.75 lb	Surpass 6.4EC = 2.5 pt AAtrex 4L = 1.5 pt
Laddok S-12 5L	bentazon = 2.5 lb atrazine = 2.5 lb	1.67 pt	bentazon = 0.52 lb atrazine = 0.52 lb	Basagran 4S = 1 pt AAtrex 4L = 1 pt
Liberty ATZ 4.3SC	glufosinate = 1 lb atrazine = 3.3 lb	40 fluid oz	glufosinate = 0.313 lb atrazine = 1.03 lb	Liberty 1.67L = 24 fluid oz AAtrex 4L = 2.06 pt
Lightning 70DG	imazethapyr = 0.525 lb imazapyr = 0.175 lb	1.28 oz	imazethapyr = 0.042 lb imazapyr = 0.014 lb	Pursuit 70DG = 0.96 oz Arsenal 2AS = 0.896 fluid oz
Lumax 3.95L	S-metolachlor = 2.68 lb mesotrione = 0.268 lb atrazine = 1 lb	3 qt	S-metolachlor = 2.01 lb mesotrione = 0.201 lb atrazine = 0.75 lb	Dual II Mangum 7.64EC = 2.1 pt Callisto 4SC = 6.4 fluid oz AAtrex 4L = 1.5 pt
Marksman 3.2L	dicamba = 1.1 lb ae atrazine = 2.1 lb	3 pt	dicamba = 0.4125 lb ae atrazine = 0.7875 lb	Banvel 4S = 0.825 pt AAtrex 4L = 1.56 pt
NorthStar 47.4WDG	primisulfuron = 0.075 lb dicamba = 0.399 lb ae	5 oz	primisulfuron = 0.023 lb dicamba = 0.125 lb ae	Beacon 75WDG = 0.50 oz Banvel 4S = 4 fluid oz
ReadyMaster ATZ 4SC	atrazine = 2 lb glyphosate = 1.5 lb ae	2 qt	atrazine = 1 lb glyphosate = 0.75 lb ae	AAtrex 4L = 2 pt Roundup 3L = 2 pt
Shotgun 3.25F	atrazine = 2.25 lb 2,4-D = 1 lb ae	2 pt	atrazine = 0.56 lb 2,4-D = 0.25 lb ae	AAtrex 4L = 1.13 pt Salvo 5E = 0.4 pt
Spirit 57WDG	prosulfuron = 0.142 lb primisulfuron = 0.428 lb	1 oz	prosulfuron = 0.009 lb primisulfuron = 0.027 lb	Peak 57WDG = 0.25 oz Beacon 75WDG = 0.57 oz
Steadfast 75WDG	nicosulfuron = 0.5 lb rimsulfuron = 0.25 lb	0.75 oz	nicosulfuron = 0.023 lb rimsulfuron = 0.012 lb	Accent 75DF = 0.5 oz rimsulfuron = 0.012 lb ai
Yukon 67.5WDG	halosulfuron = 0.125 lb dicamba = 0.50 lb ae	4 oz	halosulfuron = 0.03 lb dicamba = 0.125 lb ae	Permit 75WSG = 0.67 oz Banvel 4S = 4 fluid oz

Table 4. Soybean Herbicide Premixes.

Herbicide	*Components (ai/gal or lb)*	*If you apply/ acre:*	*You have applied (ai):*	*Product equivalents are:*
Axiom 68DF	flufenacet = 0.544 lb metribuzin = 0.136 lb	13 oz	flufenacet = 0.442 lb metribuzin = 0.111 lb	Define 60DF = 11.78 oz Sencor 75DF = 2.36 oz
Backdraft SL 1.35L	imazaquin = 0.15 lb glyphosate = 0.884 lb ae	2.5 qt	imazaquin = 0.094 lb glyphosate = 0.553 lb ae	Scepter 70DG = 2.14 oz Roundup 3L = 1.47 pt
Boundary 7.8EC	S-metolachlor = 6.3 lb metribuzin = 1.5 lb	2 pt	S-metolachlor = 1.57 lb metribuzin = 0.375 lb	Dual Magnum 7.62E = 1.65 pt Sencor 75DF = 8 oz
Canopy 75DG	chlorimuron = 0.107 lb metribuzin = 0.643 lb	6 oz	chlorimuron = 0.039 lb metribuzin = 0.24 lb	Classic 25DF = 2.56 oz Sencor 75DF = 5.14 oz
Canopy XL 56.3DG	sulfentrazone = 0.469 lb chlorimuron = 0.094 lb	6.8 oz	sulfentrazone = 0.199 lb chlorimuron = 0.04 lb	Authority 75DF = 4.25 oz Classic 25DF = 2.56 oz
Command Xtra B&G Co-Pack	clomazone = 3 lb sulfentrazone = 4 lb	25.6 fluid oz (G) + 9.6 fluid oz (B)	clomazone = 0.6 lb sulfentrazone = 0.3 lb	Command 3ME = 1.6 pt Authority 75DF = 6.4 oz
Conclude Xact B&G Co-Pack	bentazon = 2.67 lb acifluorfen = 1.33 lb sethoxydim = 2 lb	1.5 pt (B) + 1.5 pt (G)	bentazon = 0.5 lb acifluorfen = 0.25 lb sethoxydim = 0.375 lb	Basagran 4S = 1 pt Blazer 2S = 1 pt Poast 1.5E = 2 pt
Domain 60DF	flufenacet = 0.24 lb metribuzin = 0.36 lb	10 oz	flufenacet = 0.15 lb metribuzin = 0.225 lb	Define 60DF = 4 oz Sencor 75DF = 4.8 oz
Extreme 2.17L	imazethapyr = 0.17 lb glyphosate = 1.473 lb ae	3 pt	imazethapyr =0.063 lb glyphosate = 0.552 lb ae	Pursuit 2AS = 4 fluid oz Roundup 3L = 1.47 pt
Fusion 2.56EC	fluazifop = 2 lb fenoxaprop = 0.56 lb	8 fluid oz	fluazifop = 0.125 lb fenoxaprop = 0.035 lb	Fusilade DX 2E = 8 fluid oz Puma 1EC = 4.48 fluid oz
Gangster V&FR Co-Pack	flumioxazin = 0.51 lb cloransulam = 0.84 lb	2 oz (V) + 0.6 oz (FR)	flumioxazin = 0.064 lb cloransulam = 0.032	Valor 51WDG = 2 oz FirstRate 84WDG = 0.6 oz
Gauntlet Co-Pack Pursuit Plus 2.9EC	sulfentrazone = 0.75 lb cloransulam = 0.84 lb imazethapyr = 0.2 lb pendimethalin = 2.7 lb	5.33 oz + 0.6 oz 2.5 pt	sulfentrazone = 0.25 lb cloransulam = 0.031 lb imazethapyr = 0.063 lb pendimethalin = 0.84 lb	Authority 75DF = 5.33 oz FirstRate 84WDG = 0.6 oz Pursuit 2AS = 4 fluid oz Prowl 3.3EC = 2 pt
Rezult B&G Co-Pack	bentazon = 5 lb sethoxydim = 1 lb	1.6 pt (B) + 1.6 pt (G)	bentazon = 1.0 lb sethoxydim = 0.20 lb	Basagran 4S = 2 pt Poast Plus 1E = 1.6 pt
Storm 4S	bentazon = 2.67 lb acifluorfen = 1.33 lb	1.5 pt	bentazon = 0.5 lb acifluorfen = 0.25 lb	Basagran 4S = 1 pt Blazer 2S = 1 pt
Synchrony STS 42DF	chlorimuron = 0.318 lb thifensulfuron = 0.102 lb	0.5 oz	chlorimuron = 0.01 lb thifensulfuron = 0.003 lb	Classic 25DF = 0.64 oz Harmony GT 75DF = 0.068 oz

izer application and secondary tillage, and now that the calendar says it's April, thoughts turn to planting corn. Here are some thoughts and observations on whether or not we "pull the trigger" and get the crop in the ground sooner rather than later:

1. When it's fit to plant this early, it usually is a signal that there will be more than the average number of days suitable for planting over the next month. There are no guarantees on this, but when the soils are already dried sufficiently this early, rainfall is less likely to saturate the soils over the next month, even if April rainfall amounts return to normal after a dry March.

2. Very little chance exists that corn planted this early will yield more than corn planted the second half of April. Last year, corn in most of central and northern Illinois planted in mid-May yielded more than corn planted in April. This was because of the low temperatures during the third week of May that affected emerged corn and also because of rainfall in late July and early August that greatly improved yields of later-planted corn that was just pollinating. This pattern of temperatures in 2002 was unusual, but it can happen.

3. The use of Intellicoat seed coating, which is designed to keep corn seed from taking up water until soil temperatures are above a minimum, might make early-planted corn "behave" like corn planted later, but there's no guarantee. We used it on corn planted in early April at two locations in Illinois last year, and with the warm soil temperatures in mid-April, the coating did not delay emergence. Last year, corn planted in mid-May experienced colder soil temperatures for a week after planting than corn planted in early April, but the coating did not affect emergence or yield at any of the planting dates at either location. The coating has a cost, of course, and it is not clear whether this type of "insurance" can be expected to pay its way on a routine basis.

4. Replanting remains one of the best "insurance" options for early-planted corn, especially if replanting seed is available at little or no cost. Replanting of corn planted early in April, if needed, can usually be done near the "ideal" time to plant corn, which we consider to be late April. You might check out the corn replanting calculator that is part of the Web-based *Illinois Agronomy Handbook* at http://web.aces.uiuc.edu/aim/iah to see what the yield and cost consequences of inadequate stands might be.

5. There can be consequences of applying soil insecticide and some herbicides this early since we expect them to stay active longer than many of them probably will.

6. Whether or not you choose to plant this early should be influenced both by how many days of planting you have and by your personal approach to risk. For a producer with the "median" 5 or 6 days of corn planting, chances are that it can begin in mid-April and be completed on time.

7. Finally, no reason exists to rush through corn planting so that soybean planting can begin yet in April. Our studies over the past two years show clearly that soybeans do not benefit from being planted in April and they can suffer decreased yields if planted in early April. May is the month to plant soybean in Illinois.—*Emerson D. Nafziger*

REGIONAL REPORTS

Extension center educators, unit educators, and unit assistants in northern, west-central, east-central, and southern Illinois prepare regional reports to provide more localized insight into pest situations and crop conditions in Illinois. The reports will keep you up to date on situations in field and forage crops as they develop throughout the season. The regions have been defined broadly to include the agricultural statistics districts as designated by the Illinois Agricultural Statistics Service, with slight modifications:

North (Northwest and Northeast districts, plus Stark and Marshall counties)

West-central (West and West Southwest districts, and Peoria, Woodford, Tazewell, Mason, Menard, and Logan counties from the Central district)

East-central (East and East Southeast districts [except Marion, Clay, Richland, and Lawrence counties], McLean, DeWitt, and Macon counties from the Central district)

South (Southwest and Southeast districts, and Marion, Clay, Richland, and Lawrence counties from the East Southeast district)

We hope these reports will provide additional benefits for staying current as the season progresses.

Northern Illinois

Spring field activity has been minimal throughout the area.

Growers are encouraged to inspect winter wheat and alfalfa for winter survival, considering there was little snow cover during the majority of the winter season. Generally 15 to 20 wheat plants per square foot and 40 alfalfa stems per square foot are needed to justify maintaining the stand. Winter wheat and alfalfa have only recently greened up, and a few initial reports indicate winter survival was good.

Several Extension educators have black cutworm moth traps scattered throughout the region. We will report any "intense" captures in northern Illinois in future issues.

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